

## **REMARKS**

New claims 16-19 have been added. Accordingly, claims 1-3, 6-8, 11 and 15-19 are pending. Independent claims 1, 6 and 11 have each been amended to distinguish over the prior art of record. No new matter was added. For reasons stated below, Applicant respectfully submits that the present application is in condition for allowance.

### **Amendment to Specification and Claims**

Applicant respectfully submits that the proper and correct expression of the unit of content of  $\text{Bi}_2\text{O}_3$  recited in the specification and claims of the present application is “mol%”, not “mol”. Accordingly, the specification and claims have been corrected by replacing the unit “mol” with the correct unit “mol%”. No new matter was added. For example, see page 6, line 6; page 7, Table 1; page 8, lines 14, 18 and 20; and FIG. 1 of the present application, as filed, for use of the correct unit “mol%”.

Each of the independent claims of the present application has been amended to require “an amount greater than 0.5mol% and no greater than 1.2mol% of  $\text{Bi}_2\text{O}_3$ ”. Accordingly, the claims require an amount “X” of  $\text{Bi}_2\text{O}_3$  of:  $0.5\text{mol}\% < X \leq 1.2\text{mol}\%$ . No new matter was added. For example, see page 4, lines 25-26, of the present application, as filed, which states: “... preferably **more than** 0.5mol of  $\text{Bi}_2\text{O}_3$  is added.” In addition, see page 5, lines 3-4, of the present application, as filed, which states: “... the upper limit of the additive amount has been set to 1.2mol”.

The subject matter of new claim 16 is disclosed by the sintering temperatures for Examples 2 and 3 of the present application, as filed. (See page 6, lines 10-13, and page 7, Table

1, of the present application, as filed.) The subject matter of new claims 17-19 is disclosed on page 6, lines 9-10, of the present application, as filed.

Accordingly, no new matter was added as a result of the above referenced amendments.

**Claim Rejections - 35 USC 103(a)**

*In the Office Action, the Examiner rejects claims 1-3, 6-8, 11 and 15 under 35 USC 103(a) as being obvious over WO 02/051769 in view of JP 2000-247739.*

All claims of the present application require a  $\text{SrRuO}_3$  conductive oxide sintered body containing an amount of  $\text{Bi}_2\text{O}_3$ . The primary reference cited by the Examiner, WO '769, discloses a  $\text{SrRuO}_3$  sintered compact. However, as readily admitted by the Examiner, the primary reference, WO '769, fails to disclose the presence or addition of any amount of  $\text{Bi}_2\text{O}_3$ .

The Examiner cites the secondary reference, JP '739, for a disclosure of 0.001 to 0.500 mol% of  $\text{Bi}_2\text{O}_3$  in a  $\text{SrRuO}_3$  sintered body. More specifically, Paragraph No. 0007 of the JP '739 reference discloses the use of 0.001 to 0.500 mol%, or preferably 0.01 to 0.07 mol%, or most preferably 0.03 to 0.05 mol% of the additive.

Based on the amendments made to the claims and for additional reasons stated herein, Applicant respectfully submits that the claims, as amended, are patentable and non-obvious over WO '769 in view of JP '739. More specifically, Applicant respectfully submits that the prior art references teach away from the invention as now claimed, that combining the prior art references would destroy or change their intended function or purpose, and that there is no motivation in the cited prior art references that would cause a person of ordinary skill in the art to think of combining them in the manner required by the rejection.

### The Cited References Teach Away from the Present Invention

The Federal Circuit has held that “teaching away” is the antithesis of the art suggesting that the person of ordinary skill in the art go in the claimed direction. Essentially, “teaching away” is a per se demonstration of lack of obviousness. See In re Fine, 873 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

The claims of the present application have been amended to require the sintered body to contain an amount of  $\text{Bi}_2\text{O}_3$  that is **greater than 0.5mol%** and no greater than 1.2mol%. The claimed amount falls outside the range of additive amount disclosed by JP ‘739. Of course, the primary reference discloses no amount of  $\text{Bi}_2\text{O}_3$ .

In addition, the JP ‘739 reference specifically teaches to one of ordinary skill in the art that the amount of  $\text{Bi}_2\text{O}_3$  should be most preferably within a range of 0.03mol% to 0.05mol% and should not be greater than 0.5mol%. The last five lines of Paragraph No. 0007 of the English translation of the JP ‘739 reference states:

“... If it is less than 0.001mol, the relative density of the sintered compact obtained will become low, and there is a problem of not being desirable in using as a target for sputtering. Moreover, **when it exceeds 0.5mol**, by adding many addition ingredients to the metal conductivity oxide which is the main ingredients, the generated amount of a different-species compound increases and **there is a problem of spoiling conductivity**.”

Accordingly, one of ordinary skill in the art is taught by JP ‘739 not to exceed 0.5mol% of additive to avoid problems with respect to conductivity.

For this reason, Applicant respectfully submits that JP ‘739 teaches away from the invention required by independent claims 1, 6 and 11, as amended, of the present application. For at least this reason, Applicant respectfully submits the independent claims 1, 6 and 11 are not

obviated by WO '769 in view of JP '739. Accordingly, Applicant requests reconsideration and removal of the rejection.

WO '769 is Not Combinable with JP '739 without Changing/Destroying its Function

The Federal Circuit has consistently held that when a §103 rejection is based upon a modification of a reference that destroys the intent, purpose or function of the invention disclosed in the reference, such a proposed modification is not proper and the *prima facie* case of obviousness cannot be properly made. See, for instance, In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The sintering conditions disclosed by WO '769 are completely different from that of the present invention. Accordingly, merely adding Bi<sub>2</sub>O<sub>3</sub> to the sintered body of WO '769 would not provide the results of the present application and would produce an inferior and defective product thereby destroying the intent, purpose or function of the invention disclosed in WO '769.

The sintering process disclosed by WO '769 is hot press sintering under a pressure of 200kg/cm<sup>2</sup> or 300 kg/cm<sup>2</sup> at a temperature of 1200 to 1400°C in an inert gas or vacuum. The secondary reference, JP '739 discloses sintering at 1000 to 1350°C. In contrast, the present application discloses that a molding is first made by CIP (cold isostatic pressing) at a pressure of 1500kg/cm<sup>2</sup> and then the molding is set within a vented alumina container and sintered at a temperature of 1400 to 1700°C. The combination of the additive amount and sintering conditions required by the present application ensures a relative density of no less than 93% and a sintered body capable of suppressing the generation of particles during sputtering thereby

improving the quality and production yield of thin films. It also prevents undesired reaction between the components of the sintered body and the graphite die of hot pressing equipment.

As stated above, merely adding  $\text{Bi}_2\text{O}_3$  to the sintered body of WO '769 and using the sintering conditions of WO '769 would not produce the results obtained according to the present application. This is because under the sintering conditions disclosed by WO '739, the  $\text{Bi}_2\text{O}_3$ , which has a low melting point, will react with the die material during hot pressing and, in addition, will be reduced to yield metallic Bi. These events will clearly deteriorate the yield and quality of the sintered body produced thereby.

Accordingly, Applicant respectfully submits that merely adding  $\text{Bi}_2\text{O}_3$  to the sintered body of WO '769 without altering sintering conditions would change/destroy the intended function of the WO '769 sintered body. It cannot be obvious for one of ordinary skill in the art to alter a reference to an extent that would completely destroy essential, fundamental properties and features required by the reference. Applicant respectfully requests reconsideration and removal of the rejection for at least this additional reason.

#### There is no Motivation in the Prior Art for Combining the Cited References

The mere fact that references can be combined or modified does not render the resultant combination obvious. See MPEP §2143.01 and In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Applicants respectfully submit that, when mixing powders and forming a sintered body, the characteristics of such sintered body will vary significantly depending on differences in the types of powders before sintering, composition ratio of the mixed powders, sintering temperature

and pressure, and the components constituting the sintered body. The chemistry, even for metals within the same group, is entirely different and will vary greatly.

Further, Applicants respectfully submit that it would be a serious error to conclude that the present invention as claimed in the present application would have been obvious to one of ordinary skill of the art at the time the invention was made based on the teachings of WO '769 and JP '739. For instance, see Example 3 disclosed in Paragraph No. 0014 of the English language translation of JP '739. The addition of 0.01 to 0.06mol% of  $\text{Bi}_2\text{O}_3$  in the sintered body disclosed by JP '739 is used to produce a thin **sputtered film** with a resistivity of  $3 \times 10^{-6} \Omega\text{m}$ . However, this does not render obvious to one of ordinary skill in the art how to produce a **target** having a resistivity of  $5 \times 10^{-6} \Omega\text{m}$  or less by adding an amount of  $\text{Bi}_2\text{O}_3$  greater than 0.5mol%.

Accordingly, Applicant respectfully requests reconsideration and removal of the rejection requiring the combination of WO '769 and JP '739 for the above stated reasons.

### **Conclusion**

In view of the above amendments and remarks, Applicant respectfully submits that the rejection has been overcome and that the present application is in condition for allowance. Thus, a favorable action on the merits is therefore requested.

Please charge any deficiency or credit any overpayment for entering this Amendment to our deposit account no. 08-3040.

Respectfully submitted,  
Howson & Howson LLP  
Attorneys for Applicants

By     /William Bak/      
William Bak  
Reg. No. 37,277  
501 Office Center Drive  
Suite 210  
Fort Washington, PA 19034  
(215) 540-9216